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ABSTRACT

This booklet, part of a long-range planning model concerning goal formulations, is a revision of an earlier publication on training school staff to write performance objectives (ED 011 944). The major changes in this programmed textbook include rewriting many frames and making significant changes in the presentation's sequence. This workbook covers instruction on identifying goal statements and the three parts of a performance objective; writing performance objectives; identifying program- and instructional-level objectives; classifying and writing objectives on the cognitive, psychomotor, and affective domains; and identifying and classifying performance objectives for each cognitive level. Exercises are included. (Author/JM)

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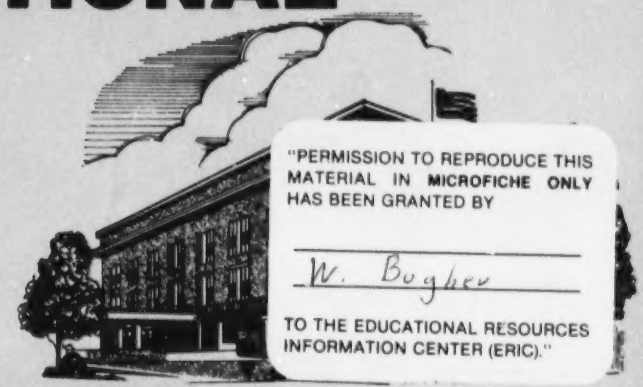
EDUCATIONAL PLANNING MODEL



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PROGRAMMED COURSE FOR WRITING PERFORMANCE OBJECTIVES

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EA 011 944

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EPM-3

DEDICATION

Phi Delta Kappa dedicates the PDK **Educational Planning Model** to the memory of Dr. B. Keith Rose, author of Phases I and II and co-author of Phase III. This organization and education suffered a great loss when, on August 22, 1975, Dr. Rose suffered a fatal heart attack.

As Director of the Northern California Program Development Center, he had provided the leadership that led to development of the planning model and SARI (Systematic Approach to Reading Improvement). It was also his original idea that Phi Delta Kappa undertake dissemination of these programs, an effort that has touched school districts throughout the United States and in many other countries.

Dr. Rose possessed the unusual ability to establish immediate rapport with community groups from diverse backgrounds. He used this ability in representing Phi Delta Kappa as a workshop leader, as a speaker, and as an individual interested in all aspects of education.

To those who knew him best, it was Dr. Rose's deep humanity and endless generosity that made him a great educator. His greatest joy as a professor of education was in providing individual counseling for his students. This generosity led to long hours of work, but it never dimmed his enthusiasm nor thwarted his creativity.

It is fitting that one of Dr. Rose's final accomplishments was completion of the last phase of the planning model that had played such an important part in his recent professional life. His passing leaves a gap that cannot be filled; however, Phi Delta Kappa takes great pride in his PDK membership and in his accomplishments in the service of education.

EDUCATIONAL PLANNING MODEL

PROGRAMMED COURSE FOR WRITING PERFORMANCE OBJECTIVES

Written by:
Program Development Center
of Northern California
California State University, Chico
Chico, California 95929
Jerry Balasek
Jerry Kelleher
Jack L. Lutz
Ira Nelken
B. Keith Rose

Edited by:
Wilmer K. Bugher
Carol E. Tippy

Distributed by:
Center for Dissemination
of Innovative Programs
Phi Delta Kappa, Inc.
Eighth & Union Streets
P.O. Box 789
Bloomington, Indiana 47401
Telephone (812) 339-1156

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FOREWORD

During the past six years, Phi Delta Kappa has been disseminating the booklet *A Programmed Course for Writing Performance Objectives.* This publication was a part of a program called *Educational Goals and Objectives: A Model Program for Community and Professional Involvement.* The programmed booklet along with all of the *Educational Goals and Objectives* materials are now component parts of Phi Delta Kappa's complete **Educational Planning Model.**

This booklet represents the first revision of the original publication. The major changes involve the rewriting of many frames and a significant change in sequence. Some of the sample objectives have also been changed to eliminate problems that occurred when the original version was used.

The programmed booklet can be used as a part of Phi Delta Kappa's **Educational Planning Model** or it can be used on a group or individual basis for staff training in writing performance objectives. It is suggested however, that the maximum benefit can be obtained through participation in group instruction—reviewing and discussing content of the booklet and following up with independent activities. This programmed booklet has been used as an instructional aid at the university and college level.

The booklet contains answers for all frames except where the writing of performance objectives is required. A slider is provided so that the booklet can be used on a nonconsumable basis, or if consumable, answers may be written in the booklet.

The booklet is divided into sections designed to develop different levels of sophistication in writing objectives. Use of this programmed booklet will assist schools, school districts, and directors of teacher inservice training in the development of skills for writing performance objectives.

For more information on Phi Delta Kappa's complete **Educational Planning Model** contact:

Center for Dissemination of Innovative Programs
Eighth & Union Sts.
Box 789
Bloomington, IN 47401

INTRODUCTION

This programmed booklet may be used for group instruction or, in significantly less time than that required for group instruction, it may be completed on an individual basis. The group instruction however, has the advantage of providing a good method for critiquing objectives that must be written for several frames.

Completion of the programmed booklet on a section basis would result in four meetings. The length of the meetings could vary from one to three hours, depending on the size of the group and the amount of time spent on critiquing objectives that are written.

It is also possible that a group or individual would complete only a portion of the booklet. For example, if the main objective for use of the booklet is to provide instruction in recognition of well written objectives, only Section I need be completed. If the main objective is to provide instruction in recognition of well written objectives and in writing program-level and instructional-level objectives then only Section I and II need be completed. A thorough examination of the booklet and the objectives listed below should help identify those portions of the booklet that a group or individual may wish to complete.

If a staff member completes the following activities within each section, the objective for each section should be achieved:

SECTION I—(Frames 1-34)

Activities:

—Defining and identifying goals
—Defining and identifying goal clarifying statements
—Defining and identifying the three parts of a performance objective
—Writing performance objectives

Objective:

Upon completing frames 1 through 34, the staff member—learner—will be able to identify a goal, a goal clarifying statement, and the three parts of a performance objective, and to write five objectives correctly according to the criteria established in the programmed booklet.

SECTION II—(Frames 35-64)

Activities:

—Defining and identifying program-level and instructional-level objectives
—Defining and identifying the cognitive, psychomotor, and affective domains
—Classifying performance objectives according to the domain
—Writing objectives in the three domains

Objective:

Upon completing frames 35 through 64, the staff member—learner—will be able to: 1) identify program- and instructional-level objectives, 2) classify objectives according to domains, and 3) write performance objectives in three domains. Written objectives and classification activities must meet criteria established in the programmed booklet.

SECTION III—(Frames 65-108)

Activities:

—Defining and identifying the six levels of the cognitive domain
—Identifying action words for each of the six levels of the cognitive domain
—Writing performance objectives for each level of the cognitive domain

Objective:

Upon completing frames 65 through 108, the staff member—learner—will be able to classify objectives according to cognitive levels and write performance objectives for each level using appropriate action words. Written objectives and classification activities must meet criteria established in the programmed booklet.

SECTION IV—(Frames 109-135)

Activities:

—Defining and identifying the five levels of the psychomotor domain
—Identifying action words for each of the five levels of the psychomotor domain
—Writing objectives for selected levels of the psychomotor domain
—Defining and identifying the five levels of the affective domain
—Identifying action words for each of the five levels of the affective domain
—Writing objectives for selected levels of the affective domain

Objective:

Upon completing frames 109 through 135, the staff member—learner—will be able to: 1) classify performance objectives according to the five levels of the psychomotor domain, 2) classify performance objectives according to the five levels of the affective domain, and 3) write performance objectives for selected levels of the psychomotor and affective domains. Appropriateness of the classification and writing will be determined by instructor, class members, and/or coworker(s) critique. Written objectives and classification activities must meet criteria established in the programmed booklet.

GOALS, GOAL CLARIFYING STATEMENTS, AND PERFORMANCE OBJECTIVES

1. A *goal* is a statement of broad direction, general purpose, or intent. It is general and timeless and is not concerned with a specific achievement within a specified time period. Example: "All graduates should develop a desire for learning now and in the future" is a goal.

2. "All children who graduate from South High School should learn how to respect and get along with people who think, dress, and act differently" is another example of a _____ _____.

2. Goal

3. A goal is not concerned with achievement within a specified time. Is this a goal?

   By Christmas, behavior problems will have decreased 50% from incidence at the beginning of any school year. Yes No

3. No

4. No, because it is within _____.

4. A specified time

5. Two characteristics help to define a goal:

   a.

   b.

5.

a. Statement of broad direction, general purpose, or intent
b. Not concerned with achievement within a specified time

6. Which of these would be goals? Circle the letters.

   a. Understand and practice democratic ideas and ideals

   b. All learners will read at the eighth grade level as measured by a standardized test

   c. Develop good character and self-respect

6. a, c

7. A goal has two qualities:

   a.

   b.

   It is different from goal clarifying statements which are often needed to explain goals.

7.

a. Statement of broad direction, general purpose, or intent
b. Not concerned with achievement within a specified time

8. "Develop ability to communicate ideas and feelings effectively" is an example of a goal clarifying statement for the goal "Develop skills in reading, writing, speaking, and listening." "Develop skills in oral and written English" is another example of a _____ for this goal.

8. Goal clarifying statement

9. "Survival in a competitive society" is a _____. "Achievement of each of the objectives in this booklet" is an example of _____.

9. Goal

   Goal clarifying statement

10. Simply stated then, goals are timeless and are set by the community for its schools. Goal clarifying statements are used as _____ to help interpret the goal.

10. Explanatory statements

11. It would be very difficult for teachers to say that democratic processes, problem solving, and effective citizenship are *not* goals of their teaching. It would be very difficult to *prove* that democratic processes, problem solving, and effective citizenship are produced by social science, English, science, and physical education. Yet every day teachers keep these things in mind as they teach.

12. Various segments of the public are no longer satisfied with how much each educator contributes to these community goals. Somehow when everyone contributes it becomes no one's job. So, if objectives which are measurable are written, teachers and administrators honestly state their degree of responsibility. It becomes easier to determine who is responsible for what, makes it easier to plan, and ensures that the learner knows the objectives for the goals.

13. For example, teachers would agree that it would be great if all of the learners were learning to spell so each could write and communicate. But who teaches spelling? Who teaches science words? Who teaches history words? Who teaches how to communicate? If the learner does not spell well and does not communicate well, who should help? One thing exciting about performance objectives is that they are written in terms of the *learner* and the *learner's product*. The objective *does not* tell the teacher how to teach. It *does not* tell the teacher when to teach. It *does* tell what the *learner* is to know or be able to do. If the teacher teaches and the learner does not learn that behavior, what should be done? Instructors must seek alternative teaching methods to meet their responsibility to the learner.

14. So, if the learner does not spell well and does not communicate well, what should be done? Circle one letter.

    a. Make plans to reassign the teacher

    b. Seek alternatives through new methods until the learner achieves the objective

    c. After all, what can be expected, the learner's former teachers did not emphasize spelling

    d. Give up until the learner drops out of school

14. b

15. Yes, different methods can be applied until the learner achieves the objective. It becomes the learner's responsibility to prove mastery on the task described by the objective.

    A precise performance objective must have three elements:

    a. *What* must be known or done by the learner

    b. *How* the learner is to do it or demonstrate it

    c. *How well* it will be done or shown

16. Take one element: *what* must be known or done by the learner. Ask, "What is it the learner is to know or do?" Any of the following may be considered: facts, projects, ideas, definitions, places or things to identify, and/or problems to be solved. The learner could be asked to do any of these things.

17. Underline the word(s) that tell *what* the learner is to know or do. Required accuracy 100%.

a. The learner will identify the three major causes of the American Revolution.

b. The learner will jump higher than two feet.

c. The learner will circle 14 verbs in a list of 20 words.

d. The learner will solve quadratic equations.

e. The learner will circle the word(s) that tell what must be known or done.

Remember, it is important to identify *what* the learner is to *know* or *do*. If necessary, review frames 15 and 16 before proceeding to frame 18.

17.

a. Identify the three major causes of the American Revolution

b. Jump higher than two feet

c. Circle 14 verbs

d. Solve quadratic equations

e. Circle the words that tell what must be known or done

18. Practice identifying this element of an objective. Identify and underline without error the element *what must be done* in each of the performance objectives below.

Example: The learner will identify and describe six of ten map symbols commonly found on U.S. Geological Survey maps with 90% accuracy.

a. From a given list of words and using a standard dictionary the learner will be able to look up and write dictionary definitions for 15 words, without error, in a 30-minute period of time.

b. The learner will classify phrases. Given 25 sentences with an underlined phrase in each, the learner will clasify each as a *how*, *what*, *when*, *where*, *who*, or *why* phrase with a minimum of 23 correct.

c. The learner will read a story and determine time relationships. Given a story, five incomplete sentences with four choices each, and 10 statements with three time relationship choices for each, the learner will select the correct answer for each, with a minimum of 14 correct.

d. The learner will use the suffixes *er*, *ly*, *ness*, and y. Given four root words for each suffix and four incomplete sentences, the learner will use the suffixes to make new words and complete each sentence by using one of the new words with a minimum of 18 correct.

e. The learner will classify words. Given 24 words and four classifications, the learner will select the classification for each word with a minimum of 21 correct.

18.

a. Look up and write dictionary definitions for 15 words

b. Classify phrases

c. Read a story and determine time relationships

d. Use the suffixes *er*, *ly*, *ness*, and y

e. Classify words

19. If frame 18 was completed without error, proceed to frame 20. If one or more errors were made, return to frame 15. Remember, the success of this program is only as great as your learning. You, the learner, are to produce the behavior.

20. Write five examples of *what* elements for objectives. If necessary review frames 15 through 19 before proceeding with this task.

    a.

    b.

    c.

    d.

    e.

20. Have the instructor or coworker(s) check your work.

21. Note that all five of the answers to frame 20 told *what* the learner was to know or do. They did not tell the teachers how to teach. Both teacher and learner know what is to be done. *How* the learner is to demonstrate mastery must also be determined. The learner could take a test, give an oral report, physically perform, role play, make something, or exhibit a certain behavior. Any of these would be possible. The point is, the learner has to do something that the teacher can observe.

22. If the learner is asked to:

    a. understand literature

    b. value human beings

    c. appreciate art

    Can any of these be observed?

22. No

23. The learner could be asked to understand, to value, or to appreciate. But it's difficult to know when the learner is doing these things unless the behavior the learner would be exhibiting when understanding, valuing, or appreciating is clearly defined. Verbs such as these must be clearly defined for both the teacher and learner.

24. The learner has to exhibit something that can be observed. The teacher must be able to see that the learner knows or can do the task. Circle the letter of each observable behavior below. Required accuracy 100%.

a. The learner will write a paragraph using a minimum of 10 adverbs.

b. The learner will jump a minimum of four feet on the high jump.

c. The learner will enjoy Tom Sawyer.

d. The learner will underline each correct answer from among three choices given for each of 20 problems in decimal addition.

e. The learner will appreciate musical concerts at home and at school.

If one or more errors were made, return to frame 21 and reread. Remember, the learner must be *doing something that can be observed.*

24. The answers are a, b, and d, unless the criteria has been clearly defined for judging enjoyment, i.e., positive statement made by the learner regarding the book or concert.

25. Identify without error the element *how* it will be done or demonstrated by underlining that element in each of these objectives. Required accuracy 100%.

Example: Given 30 problems testing skill in solving addition and subtraction problems with two-digit numbers with no regrouping required, the learner will solve 30 addition and subtraction problems in 20 minutes with at least 26 correct.

a. The learner will demonstrate ability to identify incorrectly spelled words from a list of 20 words, by drawing circles around those words which are incorrectly spelled; 100% accuracy required.

b. Given a list of 20 topics taken from the index of a text, the learner will read the list and arrange the topics in alphabetical order as they would appear in an index, with 100% accuracy.

c. The learner will separate and organize topic headings from items within a mixed group. Given eight sets of mixed items, the learner will select the main topic from each group and place it on the blank and list the other words below it, with a minimum of seven correct.

d. The learner will clear the high jump bar set at four feet six inches using any of the three accepted techniques in three out of five attempts.

25.

a. From a list of 20 words, by drawing circles around those words which are incorrectly spelled

b. Given a list of 20 topics taken from the index of a text

c. Given eight sets of mixed items, the learner will select the main topic from each group and place it on the blank and list the other words below it

d. Using any of the three accepted techniques

26. If frame 25 was completed without error, proceed to frame 27. If one or more errors were made, return to frame 21 and work through to frame 25.

27. Using any subject, write five correct examples of the element of *how* it will be done or demonstrated. Remember, it is permissable to review previous frames relevant to this task.

    a.

    b.

    c.

    d.

    e.

27. Have the instructor or co-worker(s) check your work.

28. To this point in Section I two elements of performance objectives—*what* and *how*—have been discussed. If you have any doubts about the elements return to the beginning of the section and review.

29. In addition to knowing *what* the learner is to know or do and *how* the learner is going to show it, *how well* it is going to be done must be known. This third part of an objective lets both teacher and learner know the performance criteria. The performance criteria should be very specific and identifiable. Here are some examples of *how well*:

    —With 90% accuracy

    —According to the authors of the textbook

    —As measured by a standardized test

    —To the satisfaction of the teacher

    —To the satisfaction of the peer group

    —To the satisfaction of the learner

    The last three are very indefinite unless the teacher, or the peer group, or the learner establish criteria before attempting to achieve the objective. The more specific the objective, the more likely the learner is to know exactly what is expected, and the more quickly the learner can produce that behavior.

30. Read the example objective below and notice the underlined element which tells *how well* the learner is to perform the task.

Example: Given 10 pictures and a list of 15 sources of energy, the learner will identify the five forms of energy being used in the pictures by circling the name of the forms, with a minimum of nine correct.

Here are five performance objectives. Underline the part that tells *how well* the learner is to perform. Required accuracy 100%.

a. When given three paragraphs in which periods, commas, and capital letters are missing, the learner will correctly (100%) capitalize and properly place all periods and commas in the paragraph.

b. After class discussion and viewing films concerning the Monroe Doctrine, the learner will explain orally the three major implications of the Doctrine on U.S. policy toward a specific Latin American country drawn by lot from a hat. The learner will be done when five criteria as determined by classmates are met.

c. When given a list of four major causes of the Depression, the learner will, in one class period, write an essay in which each of the four causes is related to agriculture, urban life, and international trade to the satisfaction of the teacher.

d. By November 15 the learner will correctly solve nine of the 10 problems on page 46 of the text *Math and You*. The learner will include both the working of the problems and the correct answers.

e. The learner will write five objectives which include all three elements, *what*, *how*, and *how well*. The objectives may be in any subject area. The objectives, to be judged correct, will be labled by the learner to show the three elements. One hundred percent accuracy in both tasks is required.

30.

a. 100%

b. Five criteria as determined by classmates are met

c. To the satisfaction of the teacher

d. Nine of the 10 correctly, including both working of the problems and the correct answers

e. One hundred percent accuracy on both tasks

31. Write, with 100% accuracy, five examples of the *how well* of an objective. Feel free to review previous frames to assist with the completion of this assignment.

a.

b.

c.

d.

e.

31. Have the instructor or coworker(s) check your work.

32. This section of the manual has now discussed the three elements of a performance objective:

—*What* is to be known or done

—*How* it is to be shown

—*How well* it is to be done

Before continuing feel free to go back and review. Practice identifying the three elements in the performance objectives below using the following procedures for identification:

—Circle and label with an A the element that indicates *what* is to be known or done

—Circle and label with a B the element that indicates *how* it is to be done or demonstrated

—Circle and label with a C the element that indicates *how well* it is to be done

Example: (Given 10 problems in two-digit addition,) the learner will (solve) a (minimum of nine correctly.)
B A C

a. Given 36 multiplication problems involving the numbers zero through 10, the learner will solve the multiplication problems within a 50-minute class period with 90% accuracy.

b. Given a paper with 10 rows of three pictures in each row, the learner will circle the two pictures in each row that begin with the same consonant sound with a minimum of nine rows correct.

c. Given a paragraph, the learner will identify verbs by underlining each verb in the space provided on a separate answer sheet with a minimum of 90% accuracy.

d. Given a list of high school courses, the ninth grade student will outline a tentative four-year program believed to best meet the learner's needs. The tentative program must include courses to meet graduation requirements of the school.

e. The learner will correctly add 18 out of 20 single digit addition problems from a teacher prepared worksheet.

32.

a. A. Solve multiplication problems
B. Given thirty-six multiplication numbers zero through 10
C. Ninety percent within a 50-minute class period

b. A. Circle two pictures in each row that begin with same consonant
B. Given a paper with 10 rows of three pictures in each row
C. Nine rows correct

c. A. Identify verbs
B. Given a paragraph, underlining each verb in the space provided on a separate answer sheet
C. Ninety percent accuracy

d. A. Outline tentative four year program
B. Given a list of high school courses
C. Must include courses to meet graduation requirements

e. A. Add single-digit addition problems
B. From a teacher prepared worksheet
C. Eighteen out of 20

33. Write five performance objectives. Each objective should contain all three elements. After writing, check carefully to be sure all three elements are included with 100% accuracy.

a.

b.

c.

d.

e.

33. Have the instructor or co-worker(s) check your work.

34. At this point all learners using this booklet should know:

—Goals are broad statements

—Goals are timeless

—Goals are not concerned with achievement in a specified time period

—Goal clarifying statements further explain a goal

All learners should be able to:

—Identify a performance objective

—Label its three parts, *what, how, how well*

—Write performance objectives related to a teaching subject

If necessary review any portion of Section I before proceeding.

PROGRAM-LEVEL AND INSTRUCTIONAL-LEVEL OBJECTIVES, AND THE COGNITIVE, PSYCHOMOTOR, AND AFFECTIVE DOMAINS

35. In order to articulate the expected learning from kindergarten through grade 12 or from K-6 or K-8 in an elementary district, or from grades 9-12 in a high school, it is necessary to write performance objectives at two different levels of instruction:

    —Program level

    —Instructional level

36. Remember, a goal is a broad statement of direction or intent, not concerned with achievement within a specified time. Usually community groups and/or boards of school trustees adopt such goals to give general direction to the schools, and to make communication easier with parents and patrons. But, a goal statement is *too broad* for immediate use in the classroom.

37. Goal clarifying statements are used to define the goal more precisely and specifically, but these are still too broad to be of immediate use for classroom teachers.

38. Goals and goal clarifying statements do not provide for measurement of student progress. So performance objectives are written. First, objectives are written at the *program level.*

    Program-level performance objectives are developed for selected target goals. They are directly related to the school's goals and reflect the desired exit level of performance expected of the learners. These objectives are written for the critical skills. Critical skills are defined as the minimum skills/knowledge/concepts which are imperative for the learner's survival or success at the next higher educational level or a real-life situation. Critical skills are further defined as skills all, or at least most, learners are able to attain or complete successfully—"master"—in various curriculum areas.

Read these examples of program-level objectives:

a. Upon completion of grade 12 the learner will be able to write a mechanically correct paragraph expressing a topic sentence with supporting ideas in a coherently logical manner and achieving a minimum passing score as evaluated on the department developed grading chart.

(continued on next page)

38. (continued)

b. At the end of grade 8, given a specific situation in which a problem is presented, the learner will use the problem solving technique of inquiry to solve the problem according to the criteria of investigation specified in the Social Science Education Framework.

c. Learners will develop positive attitudes and behavior toward others, realizing that each individual has personal value and self-worth. This will be evidenced by a reduction in the number of negative comments by the learners as measured by the teacher's observation throughout the duration of the program.

39. a. The board of trustees has adopted a goal that "All learners should develop skills in reading, writing, speaking, and listening."

b. All children should:

—Develop ability to communicate ideas and feelings effectively

—Develop skills in oral and written English

These are examples of a. _____

b. _____

39.

a. Goal

b. Goal clarifying statements

40. The goal clarifying statement didn't say who was going to help the learner achieve that level of competence, did it? So, in a staff meeting it could be agreed that the English teachers would be accountable for vocabulary (other than specific vocabulary of science, social science, and math) and would be responsible for paragraph writing.

41. The English teachers would then have a departmental meeting. Program-level objectives would be written to state the desired exit level for vocabulary and paragraph writing. The two objectives could be:

At the completion of grade 8, 95% of the learners will write a 250-word paragraph utilizing correct sentence structure, capitalization, and spelling, with 90% accuracy on these skills.

At the end of grade 8, 90% of the learners will be reading at a seventh grade equivalent or higher in vocabulary as measured by the Comprehension Test of Basic Skills, Form Q, Level 3.

These two are examples of _____-level objectives, which are performance objectives directly related to district goals and reflect the desired exit levels of performance in the various curriculum areas, such as, social science, language arts, and science.

41. Program

42. Write two program level objectives in any subject.

a.

b.

42. Have the instructor or coworker(s) check your work.

43. After writing performance objectives at the program level, the professional staff will have established the overall objectives of the school and will know where specific skills are being taught and to what level of proficiency learners are expected to achieve the skills.

44. The second step in this ladder to competency in writing performance objectives is to write *instructional-level* objectives.

Instructional-level objectives are written for specific courses, disciplines, or units of work, by grade level, or by curriculum areas.

45. Instructional-level objectives tell the learner, in performance terms, all of the necessary skills and knowledge that must be mastered in order to complete the requirements of the program-level objectives.

Read these examples of instructional-level objectives:

a. The learner will identify rhyming words. Given 14 rows of five words each, the learner will circle the word in each row that rhymes with the first word with a minimum of 13 correct.

b. The learner will use an article in an encyclopedia to answer questions relative to the information available. Given an article from an encyclopedia and 10 questions, the learner will extract information from the article with 90% accuracy.

46. Using any grade level and subject, write two performance objectives at the instructional level. Remember, a performance objective has three elements.

a.

b.

46. Have the instructor or coworker(s) check your work.

47. If frame 46 was completed without error, proceed to frame 48. If one or more errors were made, return to frame 44.

48. Completion of all previous frames should prepare learners to recognize and write two levels of performance objectives.

49. Learners who are able to write performance objectives should be aware of the fact that some objectives are *knowing* things, some are *doing* things, and some are *valuing* things. A great deal of work has been done in describing individual learning behaviors. The most commonly used classification is the one done by Bloom, Krathwohl, et al. in two publications, *Handbook I: Cognitive Domain* and *Handbook II: Affective Domain*.

50. The three terms for the "domains"—or behaviors—used to describe learning and their meanings are as follows:

—*Cognitive domain:* Primarily mental and intellectual processes

—*Psychomotor domain:* primarily physical and neuromuscular skills

—*Affective domain:* primarily attitudes, values, feelings

Usually all three domains or behaviors are involved when the learner is demonstrating competency. For example, in executing a particular pass play in football, the learner must remember the various positions of teammates. That is a _____ process. The learner must throw the ball. That is a _____ skill. The learner must exhibit a desire to be successful. That is an _____ behavior.

50. Cognitive

Psychomotor

Affective

51. Continue with the example used in frame 50. Use the following performance objectives to evaluate the learner—the passer:

Cognitive Domain

After four hours of study and chalkboard discussions, the learner will, without reference to the *Playbook*, describe personal assignment and the assignments of the other 10 players of the team during the execution of the eight major pass plays described on pages 1-12 of the *Playbook* with 100% accuracy.

Psychomotor Domain

After two weeks of practice, the learner will successfully complete 10 of the 20 pass attempts under simulated game conditions.

Affective Domain

During the course of practice sessions, the learner will demonstrate a desire to play by 1) attending all practices on time, 2) making positive comments about the game of football, and 3) following directions to the best of the learner's ability. These behaviors will be evaluated by the coaching staff at predetermined times during the course of the season.

(continued on next page)

51. (continued)

All three sections of this objective would be important to a teacher to assure identification of the specific domain of the behavior to be measured. It would be impossible to measure a learner's passing skill if passing was not performed. What would happen if the learner never came to practice so the teacher could see if the learner could pass? Better yet, what would happen if the learner came to practice, was told to pass, but chose to run? It would not be possible to tell whether the learner could meet the above objectives. It is necessary to know in what domain the learner is functioning.

Remember the terms:

Knowing is the _____ domain.

Performing is the _____ domain.

Valuing is the _____ domain.

51. Cognitive

Psychomotor

Affective

52. Review:

_____ involves doing or performing.

_____ involves valuing or feeling.

_____ involves knowing.

52.

Psychomotor domain

Affective domain

Cognitive domain

53. Practice identifying the domain of learning behaviors. Read the three examples below and notice how each behavior is identified, circled, and labeled as follows:

—Circle the cognitive behavior and label it with a C.

Example: The learner will (remember) the alphabet in order.

—Circle the psychomotor behavior and label it with a P.

Example: The learner will (do push-ups)

—Circle the affective behavior and label it with an A.

Example: The learner will (demonstrate interest) in the library by . . .

Here is one complete example using the identification rules above.

The learners were (listening attentively) to the teacher and (writing) spelling words for the week into sentences. Each sentence was to be correctly (punctuated).

54. In the two narratives below identify the words in the statements which indicate cognitive, affective, and psychomotor activities. Circle and label the words with C, A, or P. Required accuracy 100%.

a. The two boys volunteered to remain after school to practice their solo parts for the concert. They practiced until they could play without sheet music and without error.

b. The girl asked a question about how mountain ranges affect cultures. To identify the mountain ranges she needed to shade each elevation level with the proper colors.

If this frame is completed without error, proceed to frame 55. If one or more errors are made, review frames 51 through 54.

54. The two boys (volunteered) to remain after school to P(practice) their solo parts for the concert. They (practiced) P until they could (play with- C out sheet music) and without error.

A

The girl (asked) a question about how mountain ranges affect cultures. To (identify) C the mountain ranges she needed to (shade) each elevation level with the proper colors. P

55. Write two short narratives of learning behavior. Each narrative is to include two of the three domains. Use any subject and setting.

a.

b.

Circle each learning behavior. For each behavior label it with a C, P, or A for cognitive, psychomotor, or affective. One hundred percent accuracy required.

55. Have the instructor or coworker(s) check your work.

56. Learners using this booklet should:

—Know the difference between a goal and goal clarifying statements

—Know the three parts of a performance objective

—Be able to write the three parts of a performance objective

—Be able to write program level and instructional level objectives

—Know the three domains of learning behavior

(continued on next page)

56.

56. (continued)

Review the identification of the domains of learning behaviors. Read each of the five objectives below and identify each as to whether it evaluates primarily the cognitive, psychomotor, or affective domain. Write the letter C, P, or A in front of the objective to identify the domain. One hundred percent accuracy required.

a. During a series of teacher-developed exercises the learner will demonstrate ability to move the eyes from left to right and right to left without moving the head or losing focus. The teacher will determine arrival at this competency when the learner has shown this skill five times on a record sheet. — a. P

b. When given a series of 10 words presented orally by the teacher, the learner will respond orally with an antonym for each word with a minimum of eight of the 10 words correct. — b. C

c. The learner upon oral direction will draw two circles, two squares, three intersections, three triangles, and two rectangles. The degree of accuracy will be determined by using standard forms as a reference. — c. P

d. The learner will repeat orally from memory the five basic rules for safety in using the welding equipment, with 100% accuracy, prior to the first use of that equipment. — d. C

e. The learner will demonstrate interest in and appreciation for music to the teacher's satisfaction by voluntarily participating in an extracurricular music activity during the second semester of grade 9. — e. A

If this frame is completed without error, proceed to frame 57. If one or more errors are made return to frame 49.

57. Using the definitions of the domains as given in frames 50 and 51, write two performance objectives in each domain. They must be 100% correct.

Cognitive domain

a.

b.

Psychomotor domain

c.

d.

Affective domain

e.

f.

57. Have the instructor or co-worker(s) check your work.

58. It is nearly impossible to write in one domain without using another domain in the process. For example, it is hard to measure an oral response without the learner knowing how to listen for the directions, how to speak for the response, and knowing what is to be recalled. As another example, it is hard to ask a learner to write a response unless the learner knows how to spell the words needed in the response. For years, learners have been asked to *know*, or *do*, or *value*, but evaluated on the basis of listening, speaking, composition, or spelling ability. Achievement should be measured in the same domain for which the objective is written. As an example, the learner may be asked to recall five basic rules for safety in using welding equipment. It is the recall of the five rules that determines achievement. It should not be required that the rules be recalled in predetermined order unless that is included in the performance objective.

59. If the learner is asked to meet the performance objective that follows, would the learner be required to use correct spelling for the response?

Given 10 words on a teacher-prepared sheet, the learner will recall and write one homonym for each word without using a dictionary with 100% accuracy in recall. Yes No

59. No

60. The learner was asked to achieve the recall of the homonym. If spelling was to be measured at the same time, it should have been included in the objective. The objective would then have read:

    Given 10 words on a teacher-prepared sheet, the learner will recall, write, and spell correctly one homonym for each word without using a dictionary with 100% accuracy on both tasks, recall and spelling.

61. One of the criticisms about performance objectives is that they usually deal with trivia—small things that are easily observed. Also, they never measure the more complicated things that learners can do. For example, it is fairly easy to measure the ability of the learner to recall five basic rules of safety for using the welding equipment. It is harder to be absolutely sure that the same learner will use the welding equipment within the limits of those same five basic rules, or that the learner will use the equipment consistently in that fashion.

62. One of the difficulties in working with learners is that there is such a difference between knowing economic causes of the American Revolution, and the French Revolution, and relating those to the "Now" revolution among many youngsters today. Yet, there is some similarity.

    If objectives are to be written for how a learner solves or evaluates "live" data in the world today, it is necessary to write objectives at a higher level of sophistication.

63. There are various levels of difficulty and sophistication in learning. Learners forget facts after 4-6 weeks. Sometimes learners are so busy recalling facts that they never do get the concept defined. So, it is important for teachers to learn to write objectives to guide the type of learning occurring in schools. It is helpful to learn to write performance objectives for each of the six levels of the cognitive domain.

64. Obviously, it is easier to exercise simple recall—knowledge level—than it is to conceptualize, apply, analyze, or evaluate. Learners demonstrate this quite often. While a struggling learner can simply recall some things, more able peers are able to conceptualize. If all learners are expected to be able to conceptualize, performance objectives need to be written to verify that learning is occurring at the expected level. The next section of this booklet will provide instruction for the identification and writing of performance objectives in six different levels of the cognitive domain.

LEVELS OF THE COGNITIVE DOMAIN

65. Bloom and his colleagues have identified six levels of the cognitive domain. They are listed below from the simplest to the most complex level:

Simple	Knowledge:	recall, remembering, or storing of information
	Comprehension:	understanding a communication, a message, making inferences, meaning
	Application:	applying information to new problems, situations, transferring of knowledge
	Analysis:	a breaking down of materials into parts, distinguishing fact from hypothesis, noting how ideas relate
	Synthesis:	putting together elements, drawing upon elements from many sources and putting them into a pattern, problem solving
Complex	Evaluation:	making judgments, involves use of criteria and standards for making appraisals

In order to be able to classify objectives into these levels, each level must be clearly defined and understood. Learn the names of each of the levels and memorize their sequence. This information is required for the activities that follow.

66. Rearrange Bloom's six levels listed in the left column below in sequence from simplest to most complex. Required accuracy 100%.

Comprehension	a. _____	a. Knowledge
Knowledge	b. _____	b. Comprehension
Analysis	c. _____	c. Application
Application	d. _____	d. Analysis
Evaluation	e. _____	e. Synthesis
Synthesis	f. _____	f. Evaluation

If this frame is completed without error, proceed to frame 67. If one or more errors are made, return to frame 65.

66.

67. The objective of this section of the manual is to provide instruction in writing objectives in the cognitive domain. To do this, each level must be defined. Then the elements applied to each level can be identified and objectives written at each level.

68. Knowledge is level one. Knowledge is defined as recall, remembering, or storage of previously learned material. It may involve almost anything from specific facts to complete theories. All that is required is recalling, or remembering specific information. Knowledge represents the lowest level of learning outcome in the cognitive domain.

69. When performance objectives are written at the knowledge level of the cognitive domain action words like the following are often used:

to define	to distinguish	to know
to recognize	to identify	to recall
to match	to name	to select
to memorize	to label	to list

70. These are not all of the action words that could be used. They are some of the more common ones. Each limits the learning to the _____ level according to Bloom's Taxonomy.

70. Knowledge

71. Examples of performance objectives for knowledge, the simplest cognitive level, are listed below. Underline the action word that indicates that each of these performance objectives is at the knowledge level. Required accuracy 100%.

71.

a. After reading Chapter III in the U.S. History textbook, the learner will list in writing, without the aid of the text, the three major battles of the Revolutionary War with 100% accuracy.

a. List

(continued on next page)

71. (continued)

b. The learner will identify five major parts of a formal letter of introduction in terms of the order of their appearance in the letter with 100% accuracy required.

b. Identify

c. Given two unmatched lists (list A, authors; list B, titles of books), the learner will match the name of the author in list A with the author's title of the book in list B with 80% accuracy required.

c. Match

d. The learner will demonstrate the recall of details after having read a story. Given a story and five questions with four answers each, the learner will first read the story and then read the questions and answer each correctly.

d. Recall

72. If frame 71 was completed without error proceed to frame 73. If one or more errors were made, return to frame 68.

73. The simplest level of the cognitive domain for the learner is the knowledge level. Write one performance objective at the knowledge level of the cognitive domain. Use any subject appropriate for a teaching responsibility. Be sure to include all three elements of a performance objective.

73. Have the instructor or coworker(s) check your work.

74. The kind of action word used to describe the knowledge level is a very direct kind. The learner lists, identifies, or recalls. It is easy to determine if the learner achieves mastery at level one, the knowledge level.

75. The comprehension level of the cognitive domain is level two. Comprehension is defined as understanding a communication, a message, making inferences, or grasping the meaning of information. This may be shown by translating information from one form to another, or by interpreting materials, or by estimating future trends.

76. The second cognitive level is _____ .

The first, simplest level is _____ .

76. Comprehension

Knowledge

77. Comprehension or making inferences requires more complex behavior than remembering. When performance objectives are written at the comprehension level of the cognitive domain action words like the following are often used:

to translate	to transform	to illustrate
to change	to restate	to interpret
to rearrange	to demonstrate	to explain
to express	to infer	to summarize
to give examples	to generalize	to comment

78. These are not all the action words that could be used to handle the second level of the cognitive domain, comprehension. They are more complex than action words used for knowledge, level one.

79. Examples of performance objectives for comprehension, the second cognitive level, are listed below. Underline the action word that indicates that each of these performance objectives is at the comprehension level. Required accuracy 100%.

a. Given a graph showing population distribution over a given area and a map depicting the physical features of this same area, the learner will explain in writing the relationship between population density and the physical environment of the area. Three elements of population distribution and four elements of environmental constraint are to be involved in the explanation. The explanation will be judged by a committee of three peers using a previously accepted 10-point rating scale.

b. Given a short story to read, the learner will summarize in 200 words or less the major theme of the story. The accuracy of the learner's summary will be judged by the other members of the class using a five-point rating scale agreed upon prior to the reading.

c. Using materials and/or equipment from the science lab, the learner will demonstrate that light is a form of energy by setting up and operating a demonstration of at least two forms of energy being used for work. The learner may use no more than two class periods from beginning of set up to time of class demonstration.

d. Given a written story in French, the learner will interpret the theme of the story by summarizing the events in order from the story, and then give an example of two of the events which could occur in present day society. A majority of classmates must approve the examples presented.

79.

a. Explain

b. Summarize

c. Demonstrate

d. Interpret

80. If frame 79 was completed without error, proceed to frame 81. If one or more errors were made in frame 79 return to frame 75.

81. Review knowledge and comprehension action words. Read the following list of verbs and put a K before those which are knowledge level and a C before those that are comprehension level with 100% accuracy.

_____ define _____ rearrange _____ label

_____ demonstrate _____ recall _____ summarize

If this frame is completed without error, proceed to frame 82. If one or more errors are made, return to frames 68 through 79.

81. K C K
C K C

82. Using any subject, write a performance objective at the comprehension level.

82. Have the instructor or coworker(s) check your work.

83. It becomes apparent that knowledge objectives might well lead the learner into the comprehension level.

84. Often, after the study of a particular topic, a learner will forget specific facts but will recall a concept. In order to ensure that a learner will recall well, the learning needs to be applied. The third level of the cognitive domain is application.

85. A learner usually goes through the knowledge and comprehension levels before arriving at the _____ level.

85. Application

86. Application refers to the ability to apply information to new problems, or situations, or transferring knowledge to a new and concrete situation. This may include the application of such things as rules, methods, concepts, principles, laws, or theories. Learning outcomes in this area require a higher level of understanding than those of knowledge or comprehension.

87. When performance objectives are written at the application level of the cognitive domain action words like the following are often used:

to apply	to generalize	to choose
to organize	to use	to transfer
to restructure	to classify	to dramatize
to solve		

88. These are not all of the action words that could be used. They are some of the more common ones. Note how they differ from the knowledge and comprehension action words. Examine each to determine how the action word involves application.

89. Examples of performance objectives for application, the third cognitive level, are listed below. Underline the action word which indicates that each of these performance objectives is at the application level. Required accuracy 100%.

a. Given a map of assembly districts, the learner will choose, by writing the assembly district numbers on a piece of paper, those districts which, in the learner's judgment are gerrymandered. For each number written, the learner will explain the reason for the judgment to the teacher's satisfaction.

b. The learner will apply word attack skills by answering correctly seven out of 10 items on a district-devised test of phonics and structural analysis.

c. Given 10 problems involving the construction of a building, the learner will apply basic geometric formulas to solve eight of the 10 problems correctly.

d. Presented with an explanation and description of what is considered by the school to be safe playground procedure for each piece of equipment, each learner will dramatize one example of safe procedure to be used with a single piece of equipment. The learner's assignment of which piece of equipment used will occur by lot, drawn by the learner, from a complete list of each piece of equipment. Satisfaction with the dramatization will be determined by how well the audience expresses agreement with the explanation.

(continued on next page)

89.

a. Choose

b. Apply

c. Apply

d. Dramatize

89. (continued)

e. Using the scientific concept that "Matter is neither created nor destroyed although it may change form," the learner will generalize, to the teacher's satisfaction, about three environmental problems which will emerge unless solid waste disposal is solved.

If this frame is completed without error, proceed to frame 90. If one or more errors are made, return to frames 84 through 89.

e. Generalize

90. Moving from one level to another, the learner is getting more involved in how information is being used. Using any subject write a performance objective at the application level. Be sure to include all three elements of a performance objective.

90. Have the instructor or coworker(s) check your work.

91. Performance objectives have been written at the knowledge, comprehension, and application levels. Writing objectives at the next three levels—analysis, synthesis, and evaluation—is usually most difficult. It is normal for educators to feel much more comfortable writing at the lower levels; however, it is important for educators to be able to write objectives at higher levels.

92. Analysis refers to the ability to break down material into its elements or parts, distinguishing fact from hypothesis, or noting how ideas relate so that its organizational structure may be understood. This may include identification of parts, a breakdown of the relationships between parts, and recognition of the organizational principles involved. This is more complex than knowledge, comprehension, and application. A learner usually goes through the three previous cognitive levels as follows:

a. _____

b. _____

c. _____

92.

a. Knowledge

b. Comprehension

c. Application

93. If frame 92 was completed without error, proceed to frame 94. If one or more errors were made, return to frame 65.

94. When performance objectives are written at the analysis level of the cognitive domain action words like the following are often used:

to discriminate	to put into lists	to analyze
to compare	to diagram	to categorize
to describe	to subdivide	to differentiate
to deduce		

95. These are not all of the action words that could be used. These are some of the more common ones. Note how they differ from the action words used for lower levels. Each limits the product of learning to the _____ level.

95. Analysis

96. Examples of performance objectives for analysis, the fourth cognitive level, are listed below. Underline the action word which indicates that each of these performance objectives is written at the analysis level. Required accuracy 100%.

96.

a. After reading a series of six policy speeches concerning U.S. foreign policy in Southeast Asia, the learner will describe orally to the class the U.S. posture under three headings: military aid, economic aid, and treaty agreements. The degree of accuracy will be determined by the class's agreement with the classification and a minimum of two examples for each of the three classifications must be included.

a. Describe

b. Given 20 words, each of which contains three or more syllables, the learner will syllabize the list. The learner may use a classroom dictionary, if desired. All words must be syllabized with 100% accuracy.

b. Syllabize

c. Given a list of 20 sentences the learner will separate all nouns into two lists with headings of common and proper nouns. Identification requires 100% accuracy and separation into proper lists requires 90% accuracy.

c. Separate

d. Upon examining 20 pictures of animals the learner will categorize by listing the name of the animal under its correct classification of either wild or domestic. Required accuracy 90%.

d. Categorize

If this frame is completed without error, proceed to frame 97. If one or more errors are made, return to frame 92.

97. Using any subject write a performance objective at the analysis level.

97. Have the instructor or co-worker(s) check your work.

98. The next level in the cognitive domain is synthesis. Synthesis refers to the ability to put together elements, to draw upon elements from many sources and putting them into a pattern, and to demonstrate problem solving. This could involve production of unique communication, a new plan of operation such as a research proposal, or a set of abstract relations. Learning outcomes at this cognitive level stress creative behaviors which usually produce new patterns or structures.

99. When performance objectives are written at the synthesis level of the cognitive domain action words like the following are often used:

to write	to produce	to create
to originate	to design	to modify
to develop	to formulate	to construct
to compose	to plan	to manipulate
to role play		

Note the emphasis on creativity with the result being a new product.

100. A learner is probably working at the _____ level of the cognitive domain if a new product is created.

100. Synthesis

101. Examples of performance objectives for synthesis, the fifth cognitive level are listed below. Underline the action word which indicates that each of these performance objectives is at the synthesis level. Required accuracy 100%.

a. The learner will role play to demonstrate knowledge of responsibility to peers. The learner will be ready to play either role, aggressor or one attacked. Using one object of choice from a ball, a pencil, or paints, the learner will role play and offer at least two solutions to the problem. Agreement of the classmates on the probable success of both solutions is competency.

(continued on next page)

101.

a. Role play

101. (continued)

b. Having learned the principles involved in the construction of a survival shelter, the learner will design and then explain to a peer group the advantages of a particular design. The learner will be evaluated on two criteria: learner constructed check list and peer group evaluation of the project design.

b. Design

c. The learner will write a paragraph explaining the steps for using a power saw. The learner must give all steps in sequence from beginning to end. Evaluation will be based on the ability of a learner-chosen peer to duplicate the directions, in order, using an actual saw.

c. Write

d. Upon completion of a four-week unit of work about Greek mythology the learner will create, with materials of the learner's choice, a project which depicts a major theme of one of the Greek myths studied during the unit. Evaluation will consist of two parts: 1) 50% of the learner's classmates will be able to identify the theme depicted, and 2) 75% of the originality criteria established by the class will be met by the project.

d. Create

If this frame is completed without error, proceed to frame 102. If one or more errors are made in either frame, return to frame 98.

102. Write a performance objective at the synthesis level. Be sure to include all three elements of a performance objective.

103. Evaluation, the sixth and highest level of the cognitive domain, involves the ability to make judgments and to use criteria and standards for making appraisals. It can be judging the value of a statement, an advertisement, a novel, a poem, a research report, etc. The judgments are based on specific predetermined criteria. These may be internal—organization, or external—relevance. The learner may use self-developed criteria, class-developed criteria, or criteria obtained from an outside source.

104. The evaluation level involves elements of all the other levels. If the validity of an advertisement for a new stereo system is to be evaluated, the system's major component parts and their functions must be identified and understood. Also minimum specifications required to produce the advertised quality of sound should be determined. Using this information, the validity of the advertisement can be determined. This example illustrates the complexity of the evaluation level. It involves all the prior cognitive levels as follows:

a. _____

b. _____

c. _____

d. _____

e. _____

Required accuracy on listing the levels is 100%.

104.

a. Knowledge

b. Comprehension

c. Application

d. Analysis

e. Synthesis

105. When performance objectives are written at the evaluation level of the cognitive domain action words like the following are often used:

to judge	to evaluate	to appraise
to consider	to weigh	to rate
to conclude	to criticize	

Notice how these words involve all the earlier levels of the cognitive domain.

106. Examples of performance objectives for evaluation, the sixth cognitive level are listed below. Underline the action word which indicates that each of these performance objectives is at the evaluation level. Required accuracy 100%.

a. The learner will demonstrate ability to judge the difference between factual and judgmental statements by identifying 80% of the examples of both types from a teacher-prepared list of 50.

b. At the end of the first semester of sociology, the learner will, in an essay of 500 words or more, evaluate the role the learner plays in the peer group formed by the class. Accuracy and completeness will be in terms of the learner's use of at least six major criteria taken from the class texts.

(continued on next page)

106.

a. Judge

b. Evaluate

106. (continued)

c. The learner will demonstrate the ability to appraise the effect of a changing society on the learner's life. Given a situation with at least two major changes i.e., introduction of rapid transit to Kansas City; or an immediate sale of all Forest Service Lands to citizens of Los Angeles after a major quake, the learner will appraise the positive and negative aspects and the value of the change in the learner's life. The learner must defend the conclusions based on satisfaction of both teacher and fellow classmates.

c. Appraise

d. Given three possible solutions to a hypothetical problem dealing with air pollution, the learner will rate each solution in terms of economic feasibility and place the solution in priority order. The learner must defend the priority order to the satisfaction of the teacher.

d. Rate

107. If frame 106 was completed without error, proceed to frame 108. If one or more errors were made, return to frame 103.

108. Using any subject write a performance objective at the evaluation level.

108. Have the instructor or co-worker(s) check your work.

LEVELS OF THE PSYCHOMOTOR AND AFFECTIVE DOMAINS

109. Successful completion of the previous 108 frames should enable educators to:

—Recognize and identify a goal

—Recognize and identify a goal clarifying statement

—Write performance objectives containing the three parts *what*, *how*, and *how well*

—Write performance objectives for the six cognitive levels:

Knowledge

Comprehension

Application

Analysis

Synthesis

Evaluation

The next task is to write objectives in the psychomotor and affective domains.

110. The psychomotor domain deals primarily with physical and neuromuscular skills. Examples of such skills include throwing, catching, writing a letter, etc. In the areas of the curriculum where the development of physical and neuromuscular skills is important, the learner's ability to demonstrate the skills must be evaluated.

Just as the cognitive domain has levels of complexity, the psychomotor domain also has levels of complexity. The cognitive domain has _____ levels; the psychomotor domain has five levels.

110. Six

111. There is not a single, accepted list of the levels of the psychomotor domain as there is with the cognitive domain. Therefore, this booklet uses the most commonly accepted list developed by Dr. R. H. Dave, Head of the Department of Curriculum and Evaluation of the National Institute of Education in New Delhi, India.

112. Learning a new physical skill is significantly different than achieving most skills in the cognitive domain. For example, awkwardness is frequently encountered when a learner begins to practice a new physical skill. The usual order of becoming competent in the psychomotor domain involves five levels. The five levels and their definitions are listed below. Learn these levels and their definitions.

Imitation:	repetition of some observed act, usually lacking neuromuscular coordination or control—generally crude and imperfect
Manipulation:	emphasizes skill in following directions
Precision:	emphasizes accuracy, exactness, control with reduction of errors
Articulation:	emphasizes coordination of a series of acts—involves accuracy and control plus elements of speed and time
Naturalization:	the act is routine—automatic and spontaneous responses—performance is natural and smooth

113. A learner frequently knows how a physical skill should be performed, however the learner's execution of the skill is not satisfactory. Each time the learner has a new physical neuromuscular skill to learn the learner goes through _____ levels.

113. Five

114. Examples of performance objectives for the psychomotor domain are listed below. In front of each performance objective write the learner's level of operation. Required accuracy 100%.

_____ a. The learner, having observed the demonstration of the serve, will serve the ball to the best of the learner's ability.

_____ b. The learner will, using guide words, reduce the time for finding pronunciations of 10 words in the dictionary by at least 50% over the previous exercise.

_____ c. The learner will serve without fault in two out of three games of tennis.

_____ d. The learner will follow a three-step direction in approaching the bowling lane with 100% accuracy in sequence.

_____ e. The learner will combine footwork, racquet stroke, and opponent placement to serve without fault five out of six times in tennis. The learner will accomplish this task in 10 minutes.

114.

a. Imitation

b. Precision

c. Naturalization

d. Manipulation

e. Articulation

115. If frame 114 was completed without error, proceed to frame 116. If one or more errors were made, return to frame 112.

116. Performance objectives in the psychomotor domain are written first at the _____ level, the most complex level of physical performance. The next step is to write prerequisite performance objectives for the levels which precede the most complex level.

116. Naturalization

117. It is not possible to see each level of the psychomotor domain independently as it develops. Sometimes the learner is functioning at two or three levels at the same time. This is particularly true from precision to articulation and on to naturalization. For example, in learning to drive a car a learner could always turn the ignition on properly, but still brake improperly.

118. Four performance objectives in the psychomotor domain are listed below. Read each and identify at what level the performance objective is written. Required accuracy 100%.

118.

a. Having completed two weeks of instruction and practice, the learner will be able to dribble a basketball the full length of the court with 100% control as observed by the teacher.

a. Naturalization

b. Given a verbal request that requires three simple movements of the right arm, the learner will demonstrate the ability to carry out the oral commands with 100% accuracy.

b. Manipulation

c. The learner will demonstrate locomotor, axial, and combination skills to rhythmic accompaniment. Given fundamental rhythms, the learner will skip, jump, leap, hop, run, and gallop. Success will be achieved if the learner's total skill is exhibited in harmony with the rhythm and is continuous on command of the teacher.

c. Articulation

d. The learner will demonstrate walks, balances, and rolls. Given self-testing situations involving stunts—such as walking on a balance beam, partner rolling, holding knee to chest and retaining balance for 10 seconds, hopping on one foot and then the other for 10 seconds—the learner will demonstrate each to the satisfaction of the teacher.

d. Articulation

119. Remember, performance objectives for the psychomotor domain are usually written at the naturalization level. The next step is to move backwards from the naturalization level—the most complex—to the imitation level—the simplest level.

120. Very little information is available on how psychomotor skills develop. Although they can be recognized when present, precisely what they involve is difficult to determine. Some educators are working on this problem.

121. There are _____ levels in the cognitive domain.

There are _____ levels in the psychomotor domain.

121. Six

Five

122. The third and last domain, the affective domain, is the one where attitudes, values, and emotions are involved. It is evident that if one is learning about the American heritage one would probably have some feeling about the early pioneers. If one is learning to play volleyball, one would enjoy playing it well. It should be evident that usually the affective domain is involved in both the cognitive and the psychomotor objectives. In the vast majority of learning situations all three domains are present. However, for this discussion the three domains are deliberately separated.

123. There are five levels in the affective domain. It is desirable to learn to recognize and write performance objectives on all five levels, however practice in writing objectives will be limited to selected levels in this booklet.

124. The five levels in the affective domain are:

Receiving:	willingness to attend to a specific stimulus, from the teacher's viewpoint, it is concerned with getting, holding, and directing a learner's attention
Responding:	active participation on the part of the learner; may be acquiescence in reading, reading beyond the assignment, choosing to read in the library beyond the rest of the group; "interests" are commonly found here in the objective
Valuing:	worth or value a learner attaches to a particular object, behavior, or phenomenon; "appreciation" and "attitudes" usually fall at this level
Organization:	is concerned with bringing together different values, resolving conflicts between them, beginning building an internally consistent value system e.g., building a philosophy of goal for the self would fit here
Characterization:	pervasive, consistent, predictable behavior, a characteristic life style; general patterns of adjustment fall in here—personal, social, emotional behaviors

125. When performance objectives are written at the receiving level of the affective domain action words like the following are often used:

to accept	to listen
to choose	to select
to ask	to attend

Underline the action word in the performance objective below which indicates that the objective is at the receiving level.

The learner will demonstrate an awareness of the environment by listening to the teacher's directions at least 80% of the time during the first three weeks in school. Evaluation will consist of teacher observation of the learner's behavior during this time period.

125. Listening

126. When performance objectives are written at the responding level of the affective domain action words like the following are often used:

to approve	to volunteer
to tell	to recite
to acclaim	to help

Underline the action word in the performance objective below which indicates that the objective is at the responding level.

The learner will demonstrate interest in American literature by voluntarily reading a minimum of three American novels referred to by the teacher during the time the learner is enrolled in a course in American literature. The teacher will observe this behavior through the use of the learner's written or oral reports about the novels.

126. Voluntarily

127. When performance objectives are written at the valuing level of the affective domain words like the following are often used:

to choose	to invite
to share	to appreciate
to support	to join

Underline the action word in the performance objective below which indicates that the objective is at the valuing level.

The learner, after completing an exploratory music course, will demonstrate interest in music by choosing to join a group whose purpose is to play music or promote musical programs. Participation is achieving the objective.

127. Choosing

128. When performance objectives are written at the organization level of the affective domain words like the following are often used:

to formulate	to relate
to defend	to put in order
to abstract	to define

Underline the action word in the performance objective below which indicates that the objective is at the organization level.

The learner will relate to peers of all ethnic groups in the classroom or on the playground by demonstrating willingness to 1) include all learners in games and activities, 2) choose a peer regardless of ethnic group for leadership, 3) work together with all learners in study groups, 4) choose peers for personal friends from any group—to the teacher's satisfaction.

128. Relate

129. When performance objectives are written at the characterization level of the affective domain words like the following are often used:

to discriminate	to complete
to behave	to practice
to serve	to verify

Underline the action word in the performance objective below which indicates that the objective is at the characterization level.

After having taken a pretest on "sense of personal worth" of the California Test of Personality, the learner will demonstrate a more positive attitude toward self after three one-hour group counseling sessions. The learner's score on the "sense of personal worth" section will increase ½ of a standard deviation on a posttest score on the same test.

129. Verify

130. There are five levels of the affective domain. List them in order from simplest to most complex. Required accuracy 100%.

a. _____

b. _____

c. _____

d. _____

e. _____

130.

a. Receiving

b. Responding

c. Valuing

d. Organization

e. Characterization

131. If frame 130 was completed without error, proceed to frame 132. If one or more errors were made, return to frame 124.

132. Write three performance objectives in the affective domain. Before each performance objective, write the level of the objective.

Level	Objective
_____	_____
_____	_____
_____	_____

132. Have the instructor or coworker(s) check your work.

133. You have now completed exercises on the three major types of learning behaviors:

—Cognitive (mental and intellectual process)

—Psychomotor (neuromuscular process)

—Affective (attitudes and value process)

134. On the line in front of the five objectives below, label the domain primarily measured. Use a C for cognitive, a P for psychomotor, and an A for affective. Required accuracy 100%.

_____ a. The learner, as a result of career counseling, will establish a tentative vocational goal and take appropriate steps, in terms of class selection, toward achieving that goal to the satisfaction of the learner, the counselor, and the parent.

_____ b. The learner will, after the first nine weeks of kindergarten, be able to catch a large size ball 50% of the time when it is thrown from a distance of five feet.

_____ c. After two weeks in the first grade, the learner will, after a classroom recess, be seated and ready for work without teacher reminder 90% of the time, as observed by the teacher.

_____ d. By June, 80% of the learners in the kindergarten class will be able to name, with 100% accuracy, at least eight parts of the body.

_____ e. The learner will produce an art project according to teacher established criteria, using any one or combination of the following: construction paper, paints, crayons, modeling clay, and scissors.

134.

a. A

b. P

c. A

d. C

e. P

135. If frame 134 was completed without error, proceed to frame 136. If one or more errors were made for the cognitive domain, return to frame 66; for the psychomotor domain, return to frame 109; for the affective domain, return to frame 123.

136. You can now write goals and performance objectives which learners can use to:

—Guide instruction

—Develop self-actualization

—Learn more efficiently

—Achieve higher test scores

—Develop more positive self-concept

—Improve communication with teachers, parents, and school administrators

APPENDIX

Exercise I

Learners will demonstrate ability to label parts of objectives.

Using the three major components of performance objectives as guidelines, the learner will correctly label the parts of the following objectives, using the letters given below to indicate the proper parts:

a. *What* must be known or done

b. *How* it will be done or demonstrated

c. *How well* it must be done

Required accuracy 100%.

---

1. Given a set of 20 decimal fractions verbally, _____
2. the learner will write them in decimal notation _____
3. with 85% accuracy. _____

---

4. The learner will make abstract analogous relationships. _____
5. Given 20 sentences with an incomplete analogy and an underlined word in each, the learner will select from the word bank a word that completes each analogy _____
6. with a minimum of 18 correct. _____

---

7. Using a combination of sounds such as finger-snapping, taped sounds, and a xylophone _____
8. the learner will create a combination of sounds _____
9. according to the teacher's satisfaction. _____

---

10. The learner will demonstrate the effects of music and a discussion of bright and dull colors _____
11. by painting a picture which represents the learner's feelings while the learner is listening to music from Westside Story. _____
12. Evaluation will be based on agreed-to criteria as established by the teacher and the learners. _____

---

13. Given five stories and a series of sentences for each, _____
14. the learner will select the sentence which best represents the major causal factor for each story _____
15. without errors. _____

See Answer Key on the page following Exercise VI.

Exercise II

Learners will demonstrate ability to recognize complete performance objectives by placing a check (✓) before statements below which are complete performance objectives.

Required accuracy 100%.

_____ 1. Given a two-cycle gasoline engine and a complete set of tools, the learner will tune and repair the engine to perfect operating condition.

_____ 2. Eighth grade Spanish students will complete a 20-word vocabulary test after three weeks of instruction.

_____ 3. The students in community health will be aware of the major local, national, and global health problems and some of the ways in which they might be solved.

_____ 4. The student will demonstrate an awareness of career opportunities in art and related fields by presenting an oral report to the class on at least five career opportunities. The oral report must meet the standards of teacher-prepared guidelines.

_____ 5. Given both a fahrenheit and celsius thermometer, learners will be able to read four out of five temperature samples within five degrees of the correct figure using either thermometer.

_____ 6. Students in the tenth grade will be able to perform the activities described for the tenth grade level of the President's Physical Fitness Program by performing in a ¼-hour test session, during a planned six-week program. Students will demonstrate ability to the satisfaction of a certified instructor.

_____ 7. Third grade students will demonstrate their appreciation for art by completing an art project of their choice.

_____ 8. The student will demonstrate understanding and ability to use probability and statistics in making inferences with 100% accuracy.

_____ 9. Given 40 words divided into four units, the learner will alphabetize each unit with at least three units 100% correct.

_____ 10. The learner will use call numbers as an aid to locating books. Given a list of call numbers the learner will arrange them in numerical order.

See Answer Key on the page following Exercise VI.

Exercise III

Learners will demonstrate ability to recognize missing parts of performance objectives by reading the objectives below and checking in the right hand column any missing elements. Comments about missing elements may also be recorded in the right column. A check may be placed to the left of any performance objective that is complete. Required accuracy 100%.

_____ 1. Given a list of 20 whole numbers, the learner will be able to read the place value indicated by a specified digit. The student must achieve 75% accuracy.	1. What	_____
	How	_____
	How well	_____
_____ 2. Given one lab, several pictures of animals, and teacher-prepared activities, the student will summarize the basis of classification of animals.	2. What	_____
	How	_____
	How well	_____
_____ 3. The learner will give the meanings of 10 Latin prefixes.	3. What	_____
	How	_____
	How well	_____
_____ 4. The learner will solve 25 addition problems involving whole numbers with 85% accuracy.	4. What	_____
	How	_____
	How well	_____
_____ 5. Given information on the history of English, a list of 13 Latin prefixes, and 10 root words the learner will answer 10 questions correctly.	5. What	_____
	How	_____
	How well	_____

See Answer Key on the page following Exercise VI.

Exercise IV

Learners will demonstrate ability to write complete program- or instructional-level performance objectives by writing complete objectives for at least three of the six curriculum areas listed below. This assignment may be completed individually or in small groups. Required accuracy 100%.

1. Science
2. Reading
3. Social Studies
4. Music
5. Language Arts
6. Mathematics

Have the instructor or coworker(s) check your work.

Exercise V

Learners will demonstrate ability to rewrite statements to form complete performance objectives by rewriting any of the statements below that are incomplete. Required accuracy 100%.

1. The learner will be able to identify adjectives and adverbs in sentences with 75% accuracy.

2. Students will recognize well known works of art, as measured by an objective-referenced test.

3. Third grade students will show positive reactions to music activities nonverbally, through smiling, foot-tapping, or humming, or verbally.

4. The learner will specify the control necessary to test a given hypothesis.

5. Given a list of 40 compound words the learner will complete a teacher-prepared test with 90% accuracy.

Have the instructor or coworker(s) check your work.

Exercise VI

Learners will demonstrate ability to identify whether an objective evaluates primarily the cognitive, psychomotor, or affective domain by reading the objectives below and writing the letter C, P, or A in front of the objective to identify the domain. Required accuracy 100%.

_____ 1. After class demonstrations and practice the learner will demonstrate ability to perform basic square dance positions to the teacher's satisfaction.

_____ 2. Students will demonstrate comprehension of the effect of nutrient deficiency on the human body, by outlining causal factors of a case study. Eighty percent accuracy is required.

_____ 3. Senior art students will show evidence of commitment and involvement with personal art products, and the products of others, by participating in individual and group displays of art. Performance will be judged by 100% completion of teacher-developed participation guidelines.

_____ 4. Tenth grade drafting students will demonstrate ability to draw a two dimensional figure, given a familiar drawing model and any desired drafting tools. One hundred percent accuracy will be required.

_____ 5. The learner will demonstrate support for a political party of choice by listing at least four reasons for support. Satisfactory performance will be achieved with thorough writing of the four required reasons.

_____ 6. A high school student will demonstrate acceptance of school rules by cooperating with teachers and following directions given by any professional staff member. Successful achievement will be measured by a student having no disciplinary demerits by the end of the school year.

_____ 7. Given information on the simple subject, the learner will be able to identify the simple subject in a list of sentences with 75% accuracy.

_____ 8. In a driver's education practice area the learner will demonstrate ability to parallel park a 1978 Ford stationwagon by parking within six inches of the curb in no more than three attempts. Parking must be completed to the instructor's satisfaction.

_____ 9. By the end of the twelfth grade, a student will demonstrate singing ability by completing an experience in singing in a non-selective choral group. Performance is satisfactory completion of the objective.

_____ 10. Learners will analyze the effect of at least one factor in the urban environment on the human cardiovascular system by selecting an environmental factor from a teacher-prepared list and writing a short essay discussing at least two of its effects. Minimum performance is determined by peer group satisfaction with student essay.

See Answer Key on next page.

Answer Key

Exercise I

1. b	4. a	7. b	10. a	13. b
2. a	5. b	8. a	11. b	14. a
3. c	6. c	9. c	12. c	15. c

Exercise II

Statements 1, 4, 5, 6, and 9 should be checked.

Exercise III

Missing Components

1. Nothing missing
2. How well
3. How
   How well
4. How
5. What

Exercise IV & V

Have the instructor or coworker(s) check your work.

Exercise VI

1. P	6. A
2. C	7. C
3. A	8. P
4. P	9. A
5. A	10. C